

Claims

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1. An implantable prosthesis for repairing a tissue or muscle wall defect, the implantable prosthesis comprising:
- 5 a layer of repair fabric that is susceptible to the formation of adhesions with tissue and organs, the layer of repair fabric including a first surface and an outer peripheral edge;
- a barrier layer that inhibits the formation of adhesions with tissue and organs, the barrier layer being configured to inhibit the formation of adhesions between at least a portion of the first surface and adjacent tissue and organs; and
- 10 a peripheral barrier that inhibits the formation of adhesions with tissue and organs, the peripheral barrier extending about at least a portion of the outer peripheral edge of the layer of repair fabric to inhibit the formation of adhesions between the portion of the outer peripheral edge of the layer of repair fabric and adjacent tissue and organs.
2. The implantable prosthesis according to claim 1, wherein the layer of repair fabric includes a plurality of interstices that are constructed and arranged to allow tissue ingrowth thereto.
- 15 3. The implantable prosthesis according to claim 2, wherein the peripheral barrier includes an outer margin of the layer of repair fabric that has been altered to inhibit the formation of adhesions thereto.
- 20 4. The implantable prosthesis according to claim 3, wherein the outer margin of the layer of repair fabric has been melted and resolidified to render the portion of the outer peripheral edge of the layer of repair fabric substantially impervious to tissue ingrowth.
- 25 5. The implantable prosthesis according to claim 1, wherein the peripheral barrier has a tapered shape.
6. The implantable prosthesis according to claim 5, wherein the peripheral barrier has a thickness that decreases in an outward direction away from the outer peripheral edge of the layer of repair fabric.
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7. The implantable prosthesis according to claim 6, wherein the layer of repair fabric includes a second surface, the peripheral barrier tapering from the second surface of the layer of repair fabric at the outer peripheral edge thereof toward the barrier layer.

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8. The implantable prosthesis according to claim 1, wherein the peripheral barrier includes a section of the barrier layer that extends about the portion of the outer peripheral edge.

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9. The implantable prosthesis according to claim 8, wherein the layer of repair fabric includes a second surface opposite the first surface, the section of the barrier layer extending over a portion of the second surface of the layer of repair fabric adjacent the outer peripheral edge.

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10. The implantable prosthesis according to claim 9, wherein the section of the barrier layer extending over the portion of the second surface includes a plurality of fluid drainage apertures adjacent the outer peripheral edge.

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11. The implantable prosthesis according to claim 10, wherein the plurality of fluid drainage apertures include a plurality of slits extending inwardly away from the outer peripheral edge.

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12. The implantable prosthesis according to claim 11, wherein each of the plurality of slits has a generally V-shape.

13. The implantable prosthesis according to claim 10, wherein the plurality of fluid drainage apertures are spaced inwardly away from the outer peripheral edge.

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14. The implantable prosthesis according to claim 1, wherein the layer of repair fabric includes an outer perimeter, the peripheral barrier extending along the entire outer perimeter.

15. The implantable prosthesis according to claim 14, wherein the barrier layer covers the entire first surface of the layer of repair fabric.

5 16. The implantable prosthesis according to claim 1, wherein the layer of repair fabric and the barrier layer are connected by at least one series of stitches.

17. The implantable prosthesis according to claim 16, wherein the series of stitches are disposed slightly inward of the outer peripheral edge.

10 18. The implantable prosthesis according to claim 16, wherein the series of stitches are formed from an adhesion resistant material.

15 19. The implantable prosthesis according to claim 18, wherein the adhesion resistant material includes PTFE.

20 20. The implantable prosthesis according to claim 1, wherein the layer of repair fabric includes a polypropylene mesh.

21. The implantable prosthesis according to claim 20, wherein the barrier layer includes ePTFE.

22. A method of repairing a tissue or muscle wall defect, the method comprising steps of:

25 (a) providing an implantable prosthesis including a layer of repair fabric that is susceptible to the formation of adhesions with tissue and organs, the layer of repair fabric including a first surface and an outer peripheral edge, the prosthesis also including a barrier layer that inhibits the formation of adhesions with tissue and organs, the barrier layer being configured to inhibit the formation of adhesions between at least a portion of the first surface  
30 and adjacent tissue and organs, the implantable prosthesis further including a peripheral barrier that inhibits the formation of adhesions with tissue and organs, the peripheral barrier

margin extending from the inner body, the outer margin including an outer peripheral edge, each of the inner body and the outer peripheral edge having a thickness, the thickness of the outer peripheral edge being less than the thickness of the inner body; and

- 5 a barrier layer that inhibits the formation of adhesions with tissue and organs, the barrier layer being configured to inhibit the formation of adhesions between at least a portion of the first surface and adjacent tissue and organs.

<sup>23</sup>  
~~30.~~ The implantable prosthesis according to claim <sup>22</sup>~~29~~, wherein the outer margin has a non-uniform thickness.

- 10 <sup>24</sup>  
~~31.~~ The implantable prosthesis according to claim <sup>23</sup>~~30~~, wherein the outer margin has a thickness that decreases in an outward direction away from the inner body toward the outer peripheral edge.

- 15 <sup>25</sup>  
~~32.~~ The implantable prosthesis according to claim <sup>24</sup>~~31~~, wherein the outer margin has a tapered shape.

- 20 <sup>26</sup>  
~~33.~~ The implantable prosthesis according to claim <sup>22</sup>~~29~~, wherein the outer margin has been melted and resolidified to render the outer peripheral edge substantially impervious to tissue ingrowth.

<sup>27</sup>  
~~34.~~ The implantable prosthesis according to claim <sup>22</sup>~~29~~, wherein the barrier layer covers the entire first surface of the layer of repair fabric.

- 25 <sup>28</sup>  
~~35.~~ The implantable prosthesis according to claim <sup>22</sup>~~29~~, wherein the layer of repair fabric includes a polypropylene mesh.

<sup>29</sup>  
~~36.~~ The implantable prosthesis according to claim <sup>28</sup>~~35~~, wherein the barrier layer includes ePTFE.

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37. An implantable prosthesis for repairing a tissue or muscle wall defect, the implantable prosthesis comprising:

a layer of repair fabric that is susceptible to the formation of adhesions with tissue and organs, the layer of repair fabric including a first surface and an outer margin with an outer peripheral edge, the outer margin having been melted and resolidified to render the outer peripheral edge resistant to the formation of adhesions with tissue and organs; and

a barrier layer that inhibits the formation of adhesions with tissue and organs, the barrier layer being configured to inhibit the formation of adhesions between at least a portion of the first surface and adjacent tissue and organs.

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38. The implantable prosthesis according to claim 37, wherein the layer of repair fabric includes a plurality of interstices that are constructed and arranged to allow tissue ingrowth thereto.

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39. The implantable prosthesis according to claim 37, wherein the outer margin has a non-uniform thickness.

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40. The implantable prosthesis according to claim 39, wherein the outer margin has a thickness that decreases in an outward direction.

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41. The implantable prosthesis according to claim 40, wherein the outer margin has a tapered shape.

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42. The implantable prosthesis according to claim 37, wherein the layer of repair fabric includes an outer perimeter, the outer margin having been melted and resolidified along the entire outer perimeter.

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43. The implantable prosthesis according to claim 42, wherein the barrier layer covers the entire first surface of the layer of repair fabric.

<sup>37</sup>  
~~44.~~ The implantable prosthesis according to claim <sup>30</sup>~~37~~, wherein the layer of repair fabric and the barrier layer are connected by at least one series of stitches.

<sup>38</sup>  
~~45.~~ The implantable prosthesis according to claim <sup>37</sup>~~44~~, wherein the series of  
5 stitches are formed from an adhesion resistant material.

~~46.~~ An implantable prosthesis for repairing a tissue or muscle wall defect, the implantable prosthesis comprising:

10 a layer of repair fabric that is susceptible to the formation of adhesions with tissue and organs, the layer of repair fabric including a first surface;

a barrier layer that inhibits the formation of adhesions with tissue and organs, the barrier layer overlying at least a portion of the first surface to inhibit the formation of adhesions between the portion of the first surface and adjacent tissue and organs; and

15 a plurality of connecting stitches joining the barrier layer to the portion of the first surface, the plurality of connecting stitches being formed from PTFE to inhibit the formation of adhesions thereto.

~~47.~~ The implantable prosthesis according to claim 46, wherein the layer of repair fabric includes a polypropylene mesh.

20 48. The implantable prosthesis according to claim 47, wherein the barrier layer includes ePTFE.

25 49. The implantable prosthesis according to claim 46, wherein the layer of repair fabric includes an outer perimeter with a predetermined shape, the plurality of connecting stitches including at least one series of connecting stitches that follows the predetermined shape of the outer perimeter.

30 50. The implantable prosthesis according to claim 49, wherein the at least one series of connecting stitches includes a plurality of series of connecting stitches.

51. The implantable prosthesis according to claim 50, wherein the plurality of series of connecting stitches are arranged in a concentric pattern.

52. The implantable prosthesis according to claim 49, wherein the layer of repair fabric includes an outer peripheral edge, the at least one series of connecting stitches being disposed slightly inward of the outer peripheral edge.

53. The implantable prosthesis according to claim 46, wherein the barrier layer covers the entire first surface of the layer of repair fabric.

54. An implantable prosthesis for repairing a tissue or muscle wall defect, the implantable prosthesis comprising:

a layer of repair fabric that is susceptible to the formation of adhesions with tissue and organs, the layer of repair fabric including an outer margin with an outer peripheral edge, the outer margin being reinforced to form a bite region for securing the prosthesis along the outer margin; and

a barrier layer that inhibits the formation of adhesions with tissue and organs, the barrier layer being configured to inhibit the formation of adhesions between at least a portion of the first surface and adjacent tissue and organs.

55. The implantable prosthesis according to claim 54, further comprising a plurality of stitches disposed inward of the outer peripheral edge to form the bite region.

56. The implantable prosthesis according to claim 55, wherein the plurality of stitches join the barrier layer to the layer of repair fabric.

57. The implantable prosthesis according to claim 56, wherein a portion of the outer margin of the layer of repair fabric has been melted and resolidified to render a portion of the outer peripheral edge of the layer of repair fabric substantially impervious to tissue ingrowth.

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~~58~~. The implantable prosthesis according to claim ~~39~~  
~~54~~, wherein the layer of repair fabric includes a polypropylene mesh.

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~~59~~. The implantable prosthesis according to claim ~~43~~  
~~58~~, wherein the barrier layer  
5 includes ePTFE.



extending about at least a portion of the outer peripheral edge of the layer of repair fabric to inhibit the formation of adhesions between the portion of the outer peripheral edge of the layer of repair fabric and adjacent tissue and organs; and

- 5 (b) implanting the implantable prosthesis with the barrier layer and the peripheral barrier being positioned between the layer of repair fabric and a region of potential adhesions with tissue and organs.

10 23. The method according to claim 22, wherein the layer of repair fabric includes a plurality of interstices that are constructed and arranged to allow tissue ingrowth thereto.

24. The method according to claim 23, wherein the peripheral barrier includes an outer margin of the layer of repair fabric that has been altered to inhibit the formation of adhesions thereto.

15 25. The method according to claim 24, wherein the outer margin of the layer of repair fabric has been melted and resolidified to render the portion of the outer peripheral edge of the layer of repair fabric substantially impervious to tissue ingrowth.

20 26. The method according to claim 22, wherein the layer of repair fabric includes an outer perimeter, the peripheral barrier extending along the entire outer perimeter.

27. The method according to claim 26, wherein the barrier layer covers the entire first surface of the layer of repair fabric.

25 28. The method according to claim 22, wherein the layer of repair fabric and the barrier layer are connected by at least one series of stitches.

29. An implantable prosthesis for repairing a tissue or muscle wall defect, the implantable prosthesis comprising:

30 a layer of repair fabric that is susceptible to the formation of adhesions with tissue and organs, the layer of repair fabric including an inner body with a first surface and an outer